CLAIMS:

1. A method for controlling the speed of a turbine engine, the turbine engine being operative to provide power to a primary load, said method comprising:
   - detecting a decrease in the power requirement of the primary load;
   - redirecting at least a portion of the power generated by the turbine engine to a secondary load.

2. A method as defined in claim 1, wherein said detecting a decrease in the power requirement of the primary load includes monitoring at least one parameter of the primary load.

3. A method as defined in claim 2, wherein the primary load is an electric motor, said at least one parameter being selected from the group consisting of speed and load.

4. A method as defined in claim 1, wherein said detecting a decrease in the power requirement of the primary load includes monitoring the speed of the turbine engine.

5. A method as defined in claim 1, wherein said detecting a decrease in the power requirement of the primary electric load includes:
   - monitoring the speed of the turbine engine;

- computing the acceleration rate of the turbine engine.

6. A method as defined in claim 5, wherein a decrease in the power requirement of the primary electric load is detected when the acceleration rate of the turbine engine surpasses a predetermined threshold.

7. A method as defined in claim 5, wherein, if the acceleration rate of the turbine engine is above a predetermined threshold, said method includes applying a secondary load to the turbine engine for utilizing at least a portion of the power generated by the turbine engine.

8. A method as defined in claim 7, wherein the step of applying a secondary load to the turbine engine occurs only when the speed of the turbine engine is above a predetermined value.

9. A method as defined in claim 7, wherein a power level of the secondary load applied to the turbine engine is determined on a basis of the acceleration rate of the turbine engine.

10. Use of the method defined in claim 1 on a rail vehicle.

11. A method for controlling the speed of a turbine engine powering a rail vehicle, the turbine engine being operative to provide power to a traction motor

driving at least one wheel of the rail vehicle, said method comprising:

- detecting a decrease in the power required by the traction motor;
- redirecting at least a portion of the power generated by the turbine engine from the traction motor to at least one rheostatic grid of the rail vehicle for conversion into heat.

12. A method as defined in claim 11, wherein said decrease in the power required by the traction motor is indicative of a wheel slip.

13. A method as defined in claim 11, wherein said decrease in the power required by the traction motor is indicative of emergency braking.

14. A method as defined in claim 11, wherein said decrease in the power required by the traction motor is indicative of a wheel spin.

15. A system for controlling the speed of a turbine engine providing power to a primary load, said system being operative to maintain the speed of the turbine engine below a rated maximum speed by applying a secondary load to the turbine engine when a decrease in the power requirement of the primary load is detected.

16. Use of the system defined in claim 15 on a rail vehicle.

17. A system for controlling the speed of a turbine engine, the turbine engine being operative to provide power to a primary load, said system comprising:

- a controller unit capable to detect a decrease in load demand on the turbine engine by the primary load, said controller unit being responsive to said decrease in load demand on the turbine engine by the primary load to cause a secondary load to apply a respective load demand on the turbine engine.

18. A system as defined in claim 17, wherein said controller unit is operative to detect a decrease in load demand on the turbine engine by the primary load on the basis of at least one parameter of the primary load.

19. A system as defined in claim 18, further comprising a sensor unit for monitoring the operation of the primary load, said controller unit being capable to detect a decrease in load demand on the turbine engine by the primary load on the basis of signals received from said sensor unit.

20. A system as defined in claim 19, wherein the primary load is an electric motor, said sensor unit being operative to measure the speed of the electric motor.

21. A system as defined in claim 20, wherein said sensor unit is further operative to measure the load of the

electric motor.

22. A system as defined in claim 20, wherein said signals are indicative of the speed of the electric motor.

23. A system as defined in claim 21, wherein said signals are indicative of the speed and the load of the electric motor.

24. A system as defined in claim 17, wherein said controller unit is operative to detect a decrease in load demand on the turbine engine by the primary load on the basis of the speed of the turbine engine.

25. A system as defined in claim 24, further comprising a sensor unit for measuring the speed of the turbine engine, said controller unit being capable to detect a decrease in load demand on the turbine engine by the primary load on the basis of signals received from said sensor unit.

26. A system as defined in claim 25, wherein said controller unit is operative to compute an acceleration rate of the turbine engine on the basis of signals received from said sensor unit, said controller unit detecting a decrease in the load demand on the turbine engine by the primary electric load when the acceleration rate of the turbine engine surpasses a predetermined threshold.

27. A system as defined in claim 26, wherein, if the acceleration rate of the turbine engine is above the predetermined threshold, said controller unit is operative to cause the secondary load to apply its respective load demand on the turbine engine for utilizing at least a portion of the power generated by the turbine engine.

28. A system as defined in claim 26, wherein if the acceleration rate of the turbine engine is above the predetermined threshold and the speed of the turbine engine is above a predetermined value, said controller unit is operative to cause the secondary load to apply its respective load demand on the turbine engine for utilizing at least a portion of the power generated by the turbine engine.

29. A system as defined in claim 17, wherein said controller unit is responsive to said decrease in load demand on the turbine engine by the primary load to generate a control signal for causing the secondary load to apply the respective load demand on the turbine engine.

30. A system as defined in claim 17, wherein the load demand applied by the secondary load on the turbine engine is proportional to said decrease in load demand by the primary load.

31. A system as defined in claim 17, wherein said controller unit is operative to ensure that a

substantially constant load demand is maintained on the turbine engine.

32. A system as defined in claim 17, wherein said controller unit is operative to ensure that a total load demand on the turbine engine is maintained within a predetermined tolerance range.

33. Use of the system defined in claim 17 on a rail vehicle.

34. A system for controlling the speed of a turbine engine powering a rail vehicle, the turbine engine being operative to provide power to a traction motor driving at least one wheel of the rail vehicle, said system comprising:

- a sensor unit for monitoring the operation of the traction motor;
- a controller unit coupled to said sensor unit, said controller unit being capable to detect a sudden decrease in the power requirement of the traction motor on the basis of signals received from said sensor unit, said controller unit being responsive to said sudden decrease in the power requirement of the traction motor to generate a control signal for causing at least a portion of the power generated by the turbine engine to be redirected to a secondary load.

35. A system as defined in claim 34, wherein said secondary load includes at least one rheostatic grid of the rail vehicle.

36. A system for controlling the speed of a turbine engine on a rail vehicle, the turbine engine providing power to a primary electric load of the rail vehicle, said system comprising:

- a sensor for monitoring the speed of the turbine engine;
- a controller unit coupled to said sensor, said controller unit operative to compute the acceleration rate of the turbine engine;
- if the acceleration rate of the turbine engine is above a predetermined threshold, said controller unit being further operative to generate a control signal for causing a secondary load to be applied to the turbine engine such as to maintain the speed of the turbine engine below a rated maximum speed.

37. A system as defined in claim 36, wherein said controller unit generates said control signal only when the speed of the turbine engine is above a predetermined value.

38. A system for controlling the speed of a turbine engine, the turbine engine providing power to a primary electric load, said system comprising:

- a controller unit capable to detect a decrease in load demand on the turbine engine by the primary load;
- a secondary electric load selectively connectable to the turbine engine, said controller unit being responsive to said decrease in load demand on the turbine engine by the primary load to cause said secondary electric load to apply a respective load demand on the turbine engine proportional to said decrease in load demand by the primary electric load.

39. A system as defined in claim 38, wherein said controller unit controls the load demand applied by said secondary electric load to the turbine engine such that, as the load demand applied by the primary electric load to the turbine engine varies, the sum of the load demands applied to the turbine engine by the primary and secondary electric loads remains substantially constant.

40. A system as defined in claim 38, wherein said controller unit controls the load demand applied by said secondary electric load to the turbine engine such that, as the load demand applied by the primary electric load to the turbine engine varies, the sum of the load demands applied to the turbine engine by the primary and secondary electric loads remains within a predetermined tolerance range.